

LESSON
8.4

Practice C

For use with pages 533-540

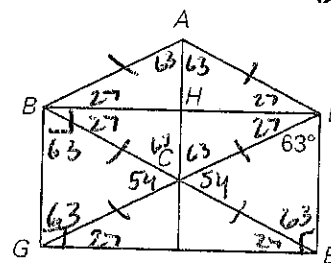
Decide whether the statement is *true* or *false*. Decide whether the converse is *true* or *false*. If both statements are *true*, write a biconditional statement. ~~Write a biconditional statement.~~

- If a quadrilateral is a rectangle, then it is a parallelogram. *T; F*
- If a quadrilateral is a parallelogram, then it is a rhombus. *F; T*
- If a quadrilateral is a square, then it is a rhombus. *T; F*
- If a quadrilateral is a rectangle, then it is a rhombus. *F; F*
- If a rhombus is a square, then it is a rectangle. *T; T*

A rhombus is a square if it is a rectangle.

In the diagram shown, $BDEG$ is a rectangle and $ABCD$ is a rhombus. Find the measure of the indicated angle.

- $\angle GDB$ *27°*
- $\angle ABC$ *54°*
- $\angle DAB$ *126°*
- $\angle BCG$ *54°*
- $\angle GCE$ *126°*
- $\angle DEG$ *90°*
- $\angle AHB$ *90°*
- $\angle DGB$ *63°*



Find the length or angle measure.

14. $WXYZ$ is a square.

$$WX = 1 - 10x$$

$$YZ = 14 + 3x = 1 - 10x$$

$$XY = ? \quad 13x = -13$$

$$x = -1$$

15. $WXYZ$ is a rhombus.

$$m\angle X = 24(10 - x) = 6(x + 15)$$

$$m\angle Z = 6(x + 15)$$

$$m\angle Y = ? \quad 60^\circ$$

$$m\angle Z = 120$$

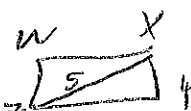
16. $WXYZ$ is a rectangle.

$$\text{Perimeter of } \triangle XYZ = 24$$

$$4(10 - x) = x + 5x \quad 40 - 4x = x + 5x \quad 40 - 4x = 6x \quad 40 = 10x \quad 4 = x$$

$$25 = 5x \quad 5 = x$$

$$WY = ? \quad 10$$

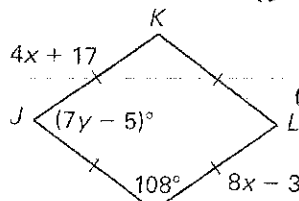


$$13 - x + 5x - 1 = 24 \quad 4x + 12 = 24 \quad 4x = 12 \quad x = 3$$

Classify the special quadrilateral. Explain your reasoning. Then find the values of x and y .

$$4x + 17 = 8x - 3$$

17.



$$2x = 4y$$

$$5 = x$$

$$7y - 5 = 72$$

$$y = 11$$

Rhombus (4 sides)

The diagonals of rhombus $RSTV$ intersect at U . Given that $m\angle URS = 71^\circ$ and $RV = 44$, find the indicated measure.

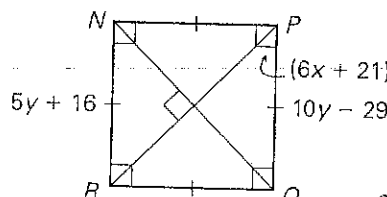
19. $m\angle URV$ *71*

20. $m\angle RVT$ *19*

21. $RT \approx 28.6$

22. $SU \approx 46.6$

18.



$$5y + 16 = 10y - 29$$

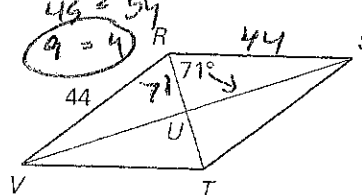
$$44 = 5y$$

$$9 = y$$

Square (def)

$$6x = 24$$

$$x = 4$$



$$\cos 71 = \frac{RU}{44}$$

$$\sin 71 = \frac{SU}{44}$$

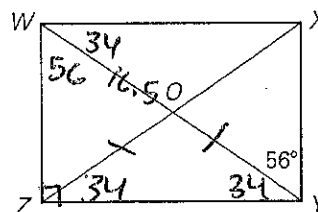
$$14.3 = RU$$

LESSON
8.4

Practice C continued
For use 533-540

The diagonals of rectangle WXYZ intersect at O. Given that $m\angle XYW = 56^\circ$ and $WY = 33$, find the indicated measure.

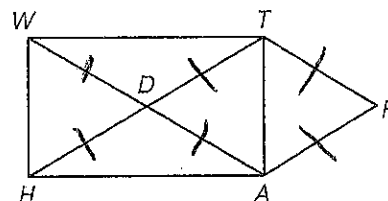
23. $m\angle XWO = 34^\circ$ 24. $m\angle ZOY = 112^\circ$
25. $XO = 16.5$ 26. $WZ \approx 18.5$



27. Complete the proof. $\sin 34 = \frac{WZ}{33}$

GIVEN: WHAT is a parallelogram.
DART is a rhombus.

PROVE: WHAT is a rectangle.

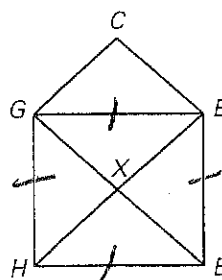


Statements	Reasons
1. WHAT is a \square .	1. ? Given
2. $\overline{WD} \cong \overline{DA}$	2. ? diagonals of \square bis. each other
3. ? $\overline{HD} \cong \overline{TD}$	3. Diagonals of \square bisect each other.
4. ? DART Rhomb	4. Given
5. $\overline{DT} \cong \overline{DA}$	5. ? def of Rhombus
6. $\overline{WD} \cong \overline{HD} \cong \overline{DA} \cong \overline{DT}$	6. ? Subst
7. ? $\overline{WD} + \overline{DA} = \overline{WA}$ $\overline{TD} + \overline{DH} = \overline{TH}$	7. Segment Addition Postulate
8. ? $\overline{WA} = \overline{TH}$	8. Substitution
9. WHAT is a rectangle.	9. ? If diagonals \cong then \square is rect.

Write a two-column or paragraph proof.

28. GIVEN: $\triangle GEC \cong \triangle GHX$
 $GEBH$ is a parallelogram.

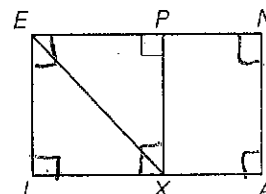
PROVE: $GEBH$ is a rhombus.



- | | |
|---|--------------------------|
| ① $\overline{GE} \cong \overline{GH}$ | ① Given |
| ② $\overline{GE} \cong \overline{HB}$ | ② CPCTC |
| ③ $\overline{GH} \cong \overline{EB}$ | ③ Opp sides of \square |
| ④ $\overline{GE} \cong \overline{GH} \cong \overline{HB} \cong \overline{EB}$ | ④ Subst |
| ⑤ $GEBH$ is a rhombus | ⑤ def of rhombus |

29. GIVEN: JANE is a parallelogram.
JPNE is a parallelogram.
 $XP \perp EN$

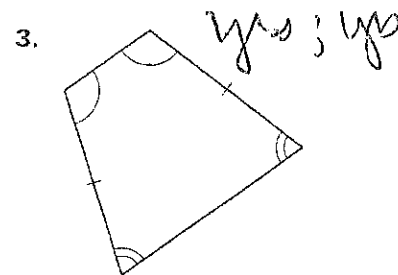
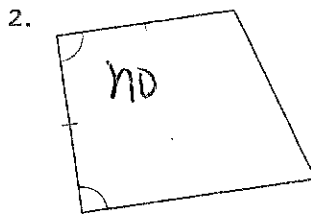
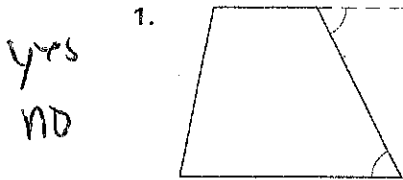
PROVE: JANE is a rectangle.



- | | |
|-------------------------------|-------------------------------|
| ① $\angle JPE$ is Rt \angle | ① Given |
| ② $\angle J \cong \angle N$ | ② Opp \angle s of \square |
| ③ $\angle J \cong \angle N$ | ③ def of \square |
| ④ $m\angle J = m\angle N$ | ④ Subst |
| ⑤ $m\angle J = 90$ | ⑤ Subst |
| ⑥ $m\angle N = 90$ | ⑥ Subst |

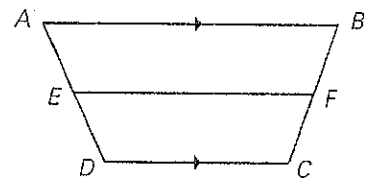
LESSON 8.5 Practice C
For use with pages 541–549

Determine whether the quadrilateral is a trapezoid. If it is, is it an isosceles trapezoid?



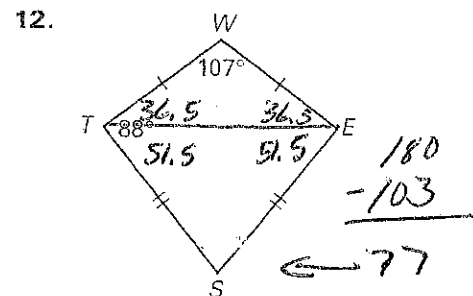
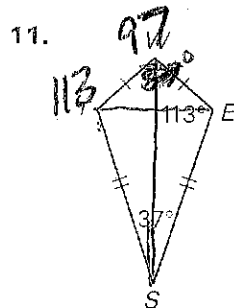
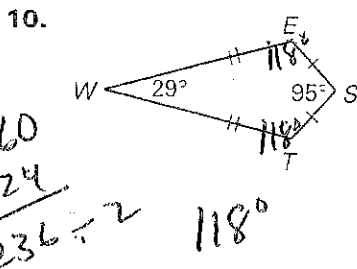
Quadrilateral $ABCD$ is a trapezoid with midsegment \overline{EF} . Use the given information to answer the following.

4. If $m\angle B = 73^\circ$, then $m\angle C =$ 107
5. If $m\angle A = 51^\circ$ and $m\angle C = 105^\circ$, then $m\angle D =$ 129
6. If $m\angle A = 48^\circ$ and $m\angle C = 112^\circ$, then $m\angle CFE =$ 68
7. If $AB = 28$ and $DC = 13$, then $EF =$ 20.5 $\frac{28+13}{2}$
8. If $EF = 13$ and $DC = 6$, then $AB =$ 20
9. If $EF = x + 5$ and $DC + AB = 4x + 6$, then $EF =$ 7

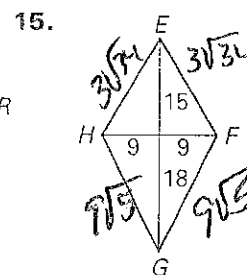
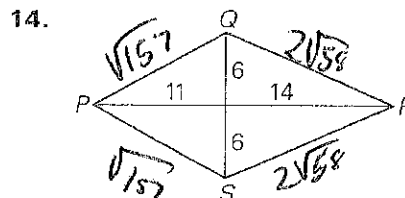
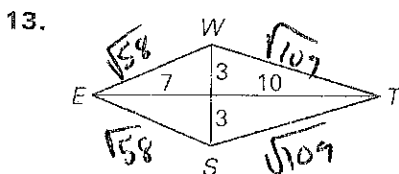


$$\begin{aligned} x+5 &= \frac{1}{2}(4x+6) \\ 2x+10 &= 4x+6 \\ -2x &= -4 \\ x &= 2 \end{aligned}$$

$WEST$ is a kite. Find the measures of the missing angles.



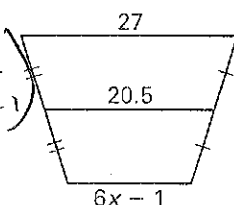
Use Theorem 8.18 and the Pythagorean Theorem to find the side lengths of the kite. Write the lengths in simplest radical form.



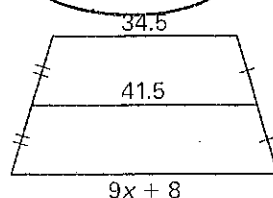
$$\begin{aligned} 7^2 + 3^2 &= 49 + 9 = 58 \\ \sqrt{58} \end{aligned}$$

LESSON
8.5**Practice C** *continued*
For use with pages 541-549Find the value of x .

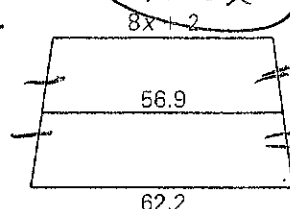
16.



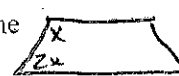
17.



18.



19. In an isosceles trapezoid, if one pair of base angles is twice the measure of the second pair of base angles, what are the measures of the angles?
20. If the midsegment of a trapezoid measures 6 units long, what is true about the lengths of the bases of the trapezoid?



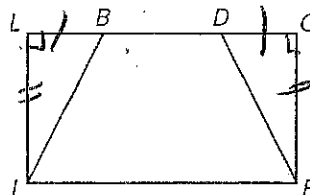
$$3x = 180$$

$$x = 60$$

$$60^\circ, 60^\circ, 120^\circ, 120^\circ$$

21. Complete the proof.

GIVEN: $LORI$ is a rectangle.
 $\overline{LB} \cong \overline{DO}$

PROVE: $BIRD$ is an isosceles trapezoid.**Statements****Reasons**

1. $LORI$ is a rectangle.
2. $\angle ILB$ and $\angle ROB$ are right angles.
3. $\angle ILB \cong \angle ROB$
4. $\overline{LI} \cong \overline{OR}$
5. $\overline{LB} \cong \overline{DO}$
6. $\triangle LBI \cong \triangle ODR$
7. $\overline{BI} \cong \overline{RD}$
8. $\overline{BI} \parallel \overline{RD}$
9. $BIRD$ is an isosceles trapezoid.

1. ? \square
2. ? def of Rect
3. All right \angle are \cong .
4. ? Opp side $\square \cong$
5. Given
6. ? SAS
7. Corresponding parts of $\cong \triangle$ are \cong .
8. Definition of \square
9. ? If the legs of trap \cong , then it's isosceles (def of isos. trap)

22. Write a two-column or paragraph proof.

GIVEN: $\overline{AF} \cong \overline{BC}$
 $\triangle ABC \cong \triangle CDA$

PROVE: $ABCF$ is a trapezoid.